

EXHIBIT A
(CURRICULUM VITAE OF EACH INVENTOR)

Earl C. Johns, Ph.D.

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Profile Energetic, creative engineering professional with proven ability in materials development, reliability, manufacturing, and overall cost reduction. Experienced and successful in managing projects, engineers, technicians, and scientists in both laboratory and production environments.

- **Development and Manufacturing Expertise:** Strong capabilities in materials science; electrochemical processing; magnetic materials; surface science analytical tools; corrosion; reliability; variation reduction aided by statistical process control.
- **Leadership and Communication:** Cross-functional team leader; lead group of s of strong technical people in unified direction to successful completion; excellent presentation skills.

Experience 1999 – 2007 Seagate Technology Pittsburgh, PA

Research Manager & Research Staff Member

- Hired and staffed new organization responsible for wafer integration, electrodeposition, chemical mechanical planarization, and lithography for new generations of magnetic recording heads.
- Budget responsible for >\$1M/year.
- Transferred experimental perpendicular recording head to manufacturing facility.
- Project management of probe head from design, wafer fabrication, test fixture development, head gimbal assembly mount.
- Wafer integration of new generations of experimental probe heads using DFSS concepts.
- Developed wafer processes as needed for probe head build.
- Led engineers in probe head design modification to meet electrical specifications.
- Led cleaning team to successfully revitalize experimental ferro-electric storage media.

1999 Analog Devices

Wilmington, MA

Consultant

- Created design rules for fabrication of giant magneto-resistive (GMR) digital switches.
- Introduced high frequency magnetic design concepts to magneto-resistive digital switches.
- Oversaw successful processing of prototype giant-magneto-resistive digital switches.
- Created wafer manufacturing cost models for micro-mechanical relays and GMR digital switches.

1997-1999 MKE-Quantum Corporation

Shrewsbury, MA

Wet Process Manager

- Developed and implemented single and two-step Chemical Mechanical Polish planarization processes.
- Optimized NiFe processes for high manufacturing yield and superior magnetic performance.
- Developed and implemented new copper plating process with superior surface finish and greatly decreased on-wafer non-uniformity.
- Modified vendor supplied automated etch equipment for greatly improved reliability and performance.
- Led number of cross-functional teams that resolved complex processing issues.
- Reduced variation in wide variety of manufacturing processes utilizing appropriate SPC techniques.

1991-1997 Digital Equipment & Quantum Corporation Shrewsbury, MA

Development Engineer – Manufacturing Engineer – Magnetic Recording Heads

- Developed process and invented equipment for new high frequency magnetic write material. Demonstrated improved write performance.
- Developed new generation of NiFe plating equipment that improved manufacturing yield.
- Developed and was responsible for improved NiFe plating process. Reduced manufacturing costs by (1) optimizing the process and (2) eliminating opportunities for operator error.
- Developed robust selective copper etch process used in manufacturing of thin film recording heads.
- Investigated, evaluated, and thoroughly documented competitive magneto-resistive recording heads.
- Demonstrated successful longitudinal biasing for anti-ferromagnetic exchange coupled magneto-resistive recording heads
- Solved many cross-functional manufacturing problems.

1985-1991 Digital Equipment Corporation Colorado Springs, CO

Materials Development & Reliability

- Developed processes for superior signal to noise performance for magnetic media.
- Developed processes for improved tribological performance of magnetic media.
- Solved number of disk drive reliability issues related to contamination and environmental effects.
- Designed and implemented indoor corrosion tests for both laboratory and field tests. This appropriately assessed risk for new, more corrosion-susceptible products.

1979-1980 (Summers) U.S. Nuclear Regulatory Commission Gaithesburgh, MD

- Showed that allowable S/N curves combined with allowable cracks would lead to failure of nuclear pressure vessels.
- Corrected mill tailings report and responded to public comments on the veracity of the mill tailings report.

Education 1980-1985 Massachusetts Institute of Technology Cambridge, MA
Ph.D. Materials Science

- Investigated relations between (1) materials processing (rapid quenching), (2) microstructure, and (3) passive film formation in iron-titanium alloys.
- Course work in electrochemistry, corrosion, surface science, solid state physics, electronic materials, and defect chemistry.

1975-1980 University of South Florida Tampa, FL
B.S. Mechanical Engineering, Magna Cum Laude

- Emphasis in numerical methods, chemical processes, heat transfer, process modeling.

Short Courses: electrochemical engineering, magnetic recording, statistical process control, technical writing, project management.

Selected Publications

- Xiao-Min Yang, Chao, Liu, Joachim Ahner, Jun Yu, Timothy Klemmer, Earl Johns, Dieter Weller, Fabrication of FePt nanoparticles for self-organized magnetic array, *Journal of Vacuum Science and Technology B: Microelectronics and Nanometer Structures*, v 22, n 1, January/February, 2004, p 31-34.
- Stanko Brankovic, Natasa Vasiljevic, Timothy Klemmer, Earl Johns, Influence of additive adsorption on properties of pulse deposited CoFeNi alloys, *Journal of the Electrochemical Society*, v 152, n 4, 2005, p C196-C202.
- Keith Mountfield, Andrew Eckert, XiaoMin Yang, Earl Johns, E-beam proximity effect parameters of sub-100nm features, *Proceedings of SPIE - The International Society for Optical Engineering*, v 5376, n PART 2, *Advances in Resist Technology and Processing XXI*, 2004, p 959-966.
- Gary C. Rauch, Chongwon Byun, Earl R.C. Johns, and Carolyn Messinger, The Effect of Cluster Size on Media Noise in Co-Ni-P Thin-Films, *IEEE Transactions on Magnetics*, Vol. 28, No. %, September, 1992.
- Earl C. Johns, Review of the Corrosion of Thin Films Used for Magnetic Recording, *Corrosion 89*, Paper 340, National Association of Corrosion Engineers, Houston, 1989.
- T.D. Burleigh, E.R.C. Johns, and R.M. Latanision, *The Effect of Phosphorus on the Corrosion Resistance of Rapidly Quenched Alloys*, (RQ5), North-Holland, Amsterdam, 1985, p. 1457.
- E.C. Johns, R.M. Latanision, and J.B. Vander Sande, The Effect of Rapid Quenching on the Microstructure and Passivity of Iron-Titanium Alloys, *Proceedings of the Ninth International Congress on Metallic Corrosion*, 1984, p. 228.
- W.F. Anderson, G.H. Weidenhamer, and E.C. Johns, Preliminary Analysis of the Effect of Fatigue Loading and Crack Propagation on Crack Acceptance Criteria for Nuclear Power Plant Components. *NUREG-0726*, 1981.

Selected Patents and Disclosures

- Earl Johns, Mark Lutwyche, Yiao-Tee Hsia, and James Kiely, Transducers for ferroelectric storage medium, U.S. Patent # 20050128616, June 2005.
- XiaoMin Yang, Earl Johns, Timothy Klemmer, Chao Liu, Dieter Weller, Magnetic recording media having chemically modified patterned substrate to assemble self organized magnetic arrays, U.S. Patent # 20,040,071,924, April 2004.
- Sethuraman Jayashankar and Earl Johns, Method of detecting chemical mechanical polishing endpoints in thin film head processes, U.S. Patent # 20,040,038,502, February 2004.

- Earl Johns and William Challener, Recording pole for delivering coincident heat and magnetic field, U.S. Patent # 6,944,101, September 2005.
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- Robert Calhoun and Earl Johns, Disclosure to Quantum Corporation on electrochemical lamination for high frequency magnetic recording applications, 1997.
- William Haines, Earl R.C. Johns, Robert Raymond, Chongwon Byun, Durga Ravigpati, and Quock Ng, Nitrogen-Containing Materials for Wear Protection and Friction Reduction, U.S. Patent # 5,232,570, August, 1993.
- Gary C. Rauch, Earl R.C. Johns, Carolyn Messinger, Robert Stone, and Dave Young, Process for Production of Low Noise Magnetic Media, U.S. Patent # 4,816,119, March 1989.

Interests History, theology, and musical performance (violin).

Yiao-Tee Hsia
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Pittsburgh, PA 15237
Cell: (412) 292-3438
ythsia@yahoo.com

PROFILE

Over 26 years of experience in technical/engineering project and program management as well as 2 years of business development and external customer interfaces. Extensive experience in building engineering teams and project management in a dynamic business environment while meeting very aggressive goals and schedules. Experienced in working with international business environment. Very customer-oriented with emphasis on internal product quality and internal accountability. Experienced user of Microsoft Office and Project software package for tracking projects. Possesses excellent written and oral communications skills. Trained in Design for Six Sigma/Business Excellence as well Six Sigma Processes and Just-In-Time Management.

EMPLOYMENT HISTORY

Seagate Technology (Research Center), Pittsburgh, PA
Research (Executive-Level) Engineering Director, Mechanical Integration, Tribology & Servo Research
February 2000 – Present

- * Manage a team of research staff members conducting pioneering research on disk lubrication, tribology test methodologies, mechanical integration, servo technology and metrology measurement technology. Also responsible for pilot line support in the areas heads back-end build, media lubrication, tape buff and burnish/glide, media failure analysis and tribology ORT.
- * Successfully managed a cross-company HDI & Tribology Team on \$21 Million dollar NIST ATP funded Heat Assisted Magnetic Recording (HAMR) Project to develop a realistic head-disk interface. Delivered a fully functioning high temperature media lubricant capable of withstanding recording temperatures greater than 400°C without any head crashes.
- * Providing technology mentorship to research staff members at Seagate Research
- * Contributing member of the MEMS-based microactuators for micropositioning of heads
- * Contributing member of the Research Division Patent Review Committee
- * Contributing member of the Mechanical Platform and HDI Platform Committees
- * Responsible for Design For Six Sigma activities at Seagate Research

Trace Storage Technology USA Corporation, Fremont, CA
Senior Vice President, Technical Liaison, New Business Development and Sales/Marketing
November 1997 – January 2000

- * Develop and execute new business strategies in the Trace U.S.A. office on behalf of parent company based in Taiwan.
- * Directly interface with customers while working on all issues ranging from purchase orders, sample schedules, volume orders, engineering problems and payment follow-up.
- * Monitor technological development and providing technical inputs to Trace Taiwan home office on tribology and head/disk interface matters.
- * Manage account sales and technical support activities at Western Digital Corporation, Seagate Technology, Quantum Corporation, Iomega, SyQuest Technology and Castlewood Systems.
- * Manage and resolve Telecommunications and IT Issues

Komag, Inc., San Jose, CA
Director, R&D Advanced Tribology
June 1996 - Nov 1997

- * Managed a team of 20 engineers and technicians in the area of advanced tribology development.
- * Established working relationships with major head manufacturers to develop advanced head/disk interfaces. Laid the foundation for the technology breakthrough announcements recently announced by Komag/Read-Rite.

- * Technical program management of advanced head/disk interface technology including lube development, laser texture optimization and carbon overcoat development.
- * Provided expertise consultation on burnish/glide head technology development
- * Established a world-class tribology laboratory with advanced instrumentation
- * Managed corporate-wide concurrent engineering activities to expedite the smooth transfer of technology and processes from engineering to manufacturing.

Read-Rite Corporation, Milpitas, CA - July 1992 - June 1996
 Director, Advanced Mechanical Technology (11/94 - 6/96)

- * Managed a team of 15 engineers and technicians while performing overall program management functions including managing other program manager.
- * Developed and executed Read-Rite Corporate Air Bearing and Suspension Strategies as well as developed fundamental understanding of head/disk interface phenomenon.
- * Developed the fundamental understanding of Read-Rite Tripad technology
- * Managed the development of Subambient Pressure Slider technology, Altitude Insensitive Air Bearing Design, Pico Slider and Suspension development, Integrated Flexure/Suspension Technology and Air Bearing Modeling Strategy/Program.
- * Co-Inventor the worlds first altitude insensitive slider to be brought into mass production.
- * Received 2 special recognition and awards for on-time performance for program management.
- * Co-author of Company Trade Secret disclosure on the design concept of altitude insensitive air bearing.

Senior Staff R&D Engineer (7/92 - 10/94)

- * Program Manager for Subambient Pressure Slider Development responsible for introducing Read-Rite's first SPS slider.
- * Provided technical direction and guidance on air bearing design, suspension design, HGA assembly, fly height testing, metrology measurements, head/disk interface testing in Applications Engineering.
- * Successfully introduced first nano-TPC slider technology at Read-Rite.
- * Introduced the fundamental concept of a truly constant fly height slider design with fast takeoff characteristics.
- * Provided slider fabrication expertise to slider manufacturing to improve and refine slider fabrication technology. Interfaced with R&D group to bring in new slider (proximity) technology and provided technical inputs to improve fundamental conceptual design.
- * Conducted regular technical seminars and technology roadshows to educate both Read-Rite manufacturing staff in Thailand and the drive customer on new air bearing design and development concepts.

Digital Equipment Corporation, Shrewsbury, MA
 March 1981 - July 1992

During the 11 years at Digital, my responsibilities centered around 4 areas - air bearing design and development, suspension design and development, metrology measurement development and tribology testing and development. As my career grew, my responsibilities grew in increasing technical accountability as well as in people management. In the beginning, my responsibility was to develop and execute on small projects given to me by my manager and supervising a couple engineers and a technician. With each passing year, I became responsible for strategizing, developing and executing key technology building blocks while managing a team of 7 to 12 engineers and 9 to 13 technicians. Below are the positions I have held at Digital as well as some of the key accomplishments and responsibilities

- Consultant Engineer (7/90 - 7/92)
- Consultant Engineer/Cost Center Manager (10/87 - 7/90)
- Principal Engineer/Cost Center Manger (9/83 - 10/87)
- Senior Engineer (3/81 - 9/83)

- * Managed the technical, administrative and budgetary functions for the Thin Film Slider/Flexure Engineering Cost Center with annual budgets ranging from US\$2.0 to \$4.0 Million.
- * Program Manager of Constant Flying Height (CFH) Slider Program.
 - + Received special recognition for successful on-time schedule performance.
 - + Designed and delivered a manufacturable CFH slider for the Heads Business with yields above 90%.
- * Co-leader of the acquisition team responsible for the technical evaluation and the purchase of Storage Technology's MR Heads Operation located in Colorado (1982)
- * Project Manager responsible for the design and development of advanced slider design for ultra-low flying heads used in magnetic recording disk drives. Worked closely with manufacturing team to bring the design into production.
- * Program Manager responsible for the development and maintenance of the numerical modeling software code for flying magnetic recording heads.
- * Architect of the state-of-the-art tribology test laboratory with latest test equipment.
- * Project Manager responsible for the development of an highly accurate [white-light] flying height tester for ultra low flying heights.
- * Project Manager responsible for the design and development of new slider suspension concepts.
- * Project Manager responsible for the development of new slider fabrication techniques including laser etching, reactive ion milling and edge blend.
- * Project Leader in the design and development of a compact prototype hydrodynamic air bearing spindle for 3-1/2 disk drive.
- * Project Leader responsible for the development of leading edge metrology measurement tools for edge blend, crown, camber and non-coplanarity
- * Project originator and leader in the development of a semi-automated monochromatic light flying height measurement technique with 0.2 microinch measurement accuracy.
- * System Manger of the Engineering Vax Cluster supporting entire Thin Film Heads Engineering Group.

Owen-Corning Fiberglas Company, Granville, Ohio. June 1980 - March 1981

Senior Engineer

- * Developed complex computer model (software) to simulate continuous drying process of wet Fiberglas pack and optimized packaging of Fiberglas batts.
- * Developed a mathematical model (software) to simulate the packaging of fiberglass batts to optimize each trucking load.

PATENTS/PUBLICATIONS/GUEST LECTURES

- * 9 Issued U.S. Patents (see separate listing)
- * Over 25 Publications in both technical and trade journals (see separate listing)
- * 8 Invited Talks on Head-Disk Interface and HAMR Interface

PROFESSIONAL ASSOCIATIONS/ACTIVITIES

- * Elected ASME Fellow, July 2004
- * ASME Tribology Division Magnetic Storage Committee (Chair, 1/2004- 6/2006, Vice-Chair, 7/2002-12/2003)
- * Science Fair Judge at the Pittsburgh Science Fair – (2003, 2005, 2006)
- * Co-Chairman of IDEMA Disk and Substrate Standards Committee (2002-2003)
- * Co-Chairman of IDEMA Heads standards Committee (1995-2001)
- * Member of IDEMA Symposium Committee (1996-2004)
- * Board of Directors of Chinese American Information Storage Society (1998-2000)

EDUCATION

Columbia University, School of Engineering and Applied Science
New York, New York.

Ph.D. Mechanical Engineering, May 1980.

Doctoral Dissertation: Experimental Investigation of Hydrodynamic Self-Acting Gas Bearings at High Knudsen Numbers.

M.S., Mechanical Engineering, 1976.

B.S., Mechanical Engineering, 1975. Class Valedictorian.

PERSONAL

U.S. Citizen

ASME Fellow (Elected, 2004)

Member: A.S.M.E., I.E.E.E., Sigma Xi, Tau Beta Pi, Pi Tau Sigma.

Advisor (2000-present), Principal (1998-2000), Vice Principal (1996-98), Co-Founder (1995) of Milpitas Community Chinese (Language) School (not-for-profit education institution)

Founder of Pleasanton Community Chinese School (not-for-profit education institution)

Scoutmaster of Troop 130 (1981-1991); Eagle Scout (1969)

SKILLS SUMMARY

- * Design for Six Sigma, Six Sigma and JIT Training.
- * Extensive working knowledge of Microsoft Project, Access, PowerPoint, Word and Excel.
- * Numerous courses on management taken during 11 years at Digital Equipment Corporation.
- * Familiar with HMTL program (self-taught)
- * Extensive experience in writing finite difference numerical simulation software codes for fluid dynamics in FORTRAN

James Kiely

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Professional Experience

Seagate Technology, Seagate Research Center, Pittsburgh, PA

Manager, Electro-Mechanical Testing and Characterization 2006-present
Initiated and executed research projects focused on head-disc interfaces that enable novel magnetic storage technologies.

Research Staff Member 1999-present
Responsible for individual project management, developing novel test and measurement capabilities, developing advanced head-disc mechanical systems, characterizing performance using Six Sigma methodologies, and transferring technology to product development groups. Responsible for supporting head, media, and testing groups on reliability and failure analysis issues. Specific accomplishments include:

- Led task teams researching heat-assisted magnetic recording head failure, advanced head-disc interface designs, and media contamination.
- Developed laser Doppler instrumentation, software routines, and analysis methods for characterizing air bearing dynamics in three dimensions with sub-nanometer precision at high frequencies.
- Co-developed ultra-thin wear-resistant coatings.
- Professional training in project management and Design for Six Sigma.
- Produced patents, utility patents, and invention disclosures on coatings, measurement techniques, lubrication methods, and air bearing designs.
- Received technical achievement, teamwork, and patent awards.

Sandia National Laboratories, Albuquerque, NM

Member of the Research Staff 1999

- Developed a high-frequency scanning probe microscopy technique for ultra-thin film characterization.

Postdoctoral Appointee 1996-1998
• Developed fundamental understandings of surface nanomechanical properties using scanning probe methods.
• Developed experimental methods to correlate friction and adhesion of self-assembled monolayer films.
• Assessed adhesion, friction, and wear properties of MEMS surface coatings.

Naval Surface Warfare Center, White Oak, MD

Materials Engineer 1991

- Performed failure testing and failure analysis of graphite fiber composite components.
- Defined protocols for use of graphite fiber reinforced composites for NASA.

Education

University of Pennsylvania, Philadelphia, PA.

Ph.D., Materials Science and Engineering, June 1997. Doctoral Dissertation: Plasticity and Toughening Mechanisms of Metal-Ceramic Interfaces.

Harvard University, Cambridge, MA.

S.B. (honors), Engineering Sciences, 1991.

Personal

Chairman, Magnetic Storage Tribology Division, ASME (2007-present)
Organizer, Annual Special Symposium on Magnetic Storage Technology (2007-present)
Advisory Panel, National Nanotechnology Initiative: Instrumentation & Metrology for Nanotechnology.
Industrial Advisory Board Member, Robert Morris University School of Engineering, Mathematics and Science. (2003-present)
Member of M.R.S., IEEE, Sigma Xi.

Select Patents and Publications

Sensing Contact Probe U.S. Patent 7,185,440.

Recording Medium with Lubricating Layer Having Increased Thermal Stability, U.S. Patent 6,764,757.

Probe Head Media Spacing Using Rigid Supports (US Patent Application)

Magnetic Recording System with Continuous Lubrication of Recording Medium (U.S. Patent Application)

Magnetic Recording Medium Utilizing Patterned Nanoparticle Arrays, U.S. Patent Application 20020034666.

Head-Disc Static Friction Reduction, U.S. Patent Application 20030102218.

James Kiely and Yiao-Tee Hsia, Slider Dynamic Motion during Writer-Induced Pole Tip Protrusion, Microsystem Technologies (in press)

Jianfeng Xu, James Kiely, Yiao-Tee Hsia, and Frank Talke, Dynamics of Ultra-Low Flying Sliders on a Lubricated Disk, *Microsystems Technologies*, **13** 1371-1375, 2007.

Yiao-Tee Hsia and James Kiely , A Novel Metrology Technique to Capture the Flying Dynamics of Air Bearing Sliders with and without Contact, 2006 APMRC Digest, 2006.

Narayanan Ramakrishnan, Earl C. Johns, Yongjun Zhao, James D. Kiely, Mark D. Bedillion and Patrick B. Chu, Sliding Contact Micro-Bearing For Nano-Precision Sensing And Positioning, *Transducers 07 Digest*, 2007

Chang-Dong Yeo, James Knight, Andreas A. Polycarpou, James Kiely, and Yiao-Tee Hsia , Nanomechanical Properties of Sub-10 nm Carbon Film Overcoats Using the Nanoindentation Technique, *Journal of Materials Research*, **22**, 141-151, 2007

J. Xu, James D. Kiely, Yiao-Tee Hsia, and Frank Talke, The Effect of Disk Topography on Slider Dynamics, *IEEE Transactions on Magnetics*, **42**, 10, 2519-2521, 2006.

J. Xu, James D. Kiely, Yiao-Tee Hsia, and Frank Talke, Head-Medium Spacing Measurement using Read-Back Signal, *IEEE Transactions on Magnetics*, **42**, 2486-2488, 2006

Experimental and Numerical Studies of Slider Dynamics in 5 Degrees of Freedom at the Proximity Contact Regime, by Jianfeng Xu, James D. Kiely, Yiao-Tee Hsia, and Frank Talke, *ASME Journal of Tribology* 2006.

James Kiely and Yiao-Tee Hsia, Three-Dimensional Motion of Sliders Contacting Media, *ASME Journal of Tribology*, **128**, 525-533, 2006.

James Kiely, Wei Peng, and Yiao-Tee Hsia, Accelerated Wear Testing of Head-Disc Interfaces, *Tribology International*, **38** 652-656, 2005

A. Waters, A. Volinsky, J. Kiely and E. Johns, Sub-Critical Telephone Cord Delamination, *Proc. Mat. Res. Symp.* **854E**, U9.5, 2004.

Wei Peng, James Kiely, and Yiao-Tee Hsia, Wear Analysis of Head-Disk Interfaces During Contact, *ASME Journal of Tribology*, **127**, 171-179, 2005

Mei-Ling Wu, J.D. Kiely, Tim Klemmer, Yiao-Tee Hsia and Kent Howard, Process-Property Relationships in Boron Carbide Thin Films, *Thin Solid Films* **49**, 1-2, p 120-124 (2004)

J. D. Kiely and Y.-T. Hsia, Tribocharging of the magnetic hard disk drive head-disk interface, *Journal of Applied Physics* **91** (7), 4631-4636 200

H.I. Kim, V. Boiadzhiev, J.E. Houston, X.Y. Zhu and J.D. Kiely, Tribological Properties of Self-Assembled Monolayers on Au, SiO_x, and Si Surfaces, *Tribology Letters* **10**, 97-101, 2001.

K.F. Jarausch, J.D. Kiely, J.E. Houston and P.E. Russell, Defect-Dependent Elasticity: Nanoindentation as a Probe of Stress State, *Journal of Materials Research* **15**, 1693-1701, 2000.

J.D. Kiely and J.E. Houston, J.A. Mulder, R.P. Hsung, X.-Y. Zhu, Adhesion, deformation and friction for self-assembled monolayers on Au and Si surfaces, *Tribology Letters* 7 103-107, 1999.

J.D. Kiely and J.E. Houston, Contact Hysteresis and Friction in Alkanethiol Self-Assembled Monolayers on Gold, *Langmuir* 15, 4513-4519, 1999.

J.D. Kiely, K.F. Jarausch, J.E. Houston and P.E. Russell, Initial Stages of Yield in Nanoindentation, *Journal of Materials Research* 14, 2219, 1999.

J.D. Kiely, R.Q. Hwang and J.E. Houston, Effect of Surface Steps on the Plastic Threshold in Nanoindentation, *Physical Review Letters* 81, 4424-4427, 1998.

J.D. Kiely and J.E. Houston, Nanomechanical Properties of Au (111), (001), and (110) Surfaces, *Physical Review B* 57, 12588-12594, 1998.

J.D. Kiely and D.A. Bonnell, Metal-Ceramic Interface Toughness I: Observations of Plasticity on Multiple Scales, *Journal of Materials Research* 13, 2871-2880, 1998.

J.D. Kiely and D.A. Bonnell, Metal-Ceramic Interface Toughness II: Mechanisms of Fracture and Energy Dissipation, *Journal of Materials Research* 13, 2881-2887, 1998.

D.A. Bonnell and J.D. Kiely, Plasticity at Multiple Length Scales in Metal-Ceramic Interface Fracture, *Physica Status Solidi (a)* 166, 7-17, 1998.

J.D. Kiely and J.E. Houston, Indentation Modulus and Yield Point of Au (111), (001), and (110) Mater. Res. Soc. Proc. 522, Pittsburgh, PA, 1998.

K.F. Jarausch, J.D. Kiely, J.E. Houston and P.E. Russell, Correlation of Stress State and Nanomechanical Properties Mater. Res. Soc. Proc. 522, Pittsburgh, PA, 1998.

J.D. Kiely, T. Yeh and D.A. Bonnell, Evidence for the Segregation of Sulfur to Nickel-Alumina Interfaces, *Surface Science* 393, L126-L130, 1997.

J.D. Kiely and D.A. Bonnell, Quantification of Topographic Structure by Scanning Probe Microscopy, *J. Vac. Sci. Technol. B* 15, 1483, 1997.

J.D. Kiely and D.A. Bonnell, AFM Measurement of Metal-Ceramic Interface Plasticity, Interface Control of Electrical, Chemical, and Mechanical Properties, *Mater. Res. Soc. Proc.* 318, Pittsburgh, PA, 401-406, 1994.

J.D. Kiely, Performance of Graphite Fiber-Reinforced Aluminum under Fastening Compression Loads, *Naval Surface Warfare Center Technical Report* 91-408, 1991.

J.D. Kiely and J. Voltz, Non-Destructive Test and Microstructural Features of Graphite-Aluminum Space Radiator Panel, *Naval Surface Warfare Center Technical Report* 91-410, 1991.

PRESENTATIONS

(invited) J.D. Kiely, ??? MRS Annual Spring Meeting, 2008.

Departmental Seminar, University of Illinois Mechanical Engineering, November, 2007.

(invited) J.D. Kiely, Challenges in Head-Disc Tribology, STLE Annual Meeting, 2004.

(invited) J.D. Kiely, Nanomechanical Metrology Challenges for the Hard Disk Drive Industry, National Nanotechnology Initiative Grand Challenge Workshop, 2004.

J. Kiely, Materials Challenges in High-Density Magnetic Recording, Invited Course Lecture, University of Pennsylvania, 2003 and 2004.

J. Kiely, W. Peng, and Y.-T. Hsia, Evolution of Interfacial Wear at Head-Disc Interfaces during Accelerated Wear Testing, STLE Annual Meeting, 2004.

J. Kiely, W. Peng, and Y.-T. Hsia, Evolution of Wear at Head-Disc interfaces, Tribology of Information Storage Devices, 2004.

J. Kiely, J. Esmenda, T. Clinton, and Y.-T. Hsia, Interfacial Wear Measurements using FIB Milling, STLE Annual Meeting, 2003.

M.-L. Wu, J. Kiely, Y.-T. Hsia, and K. Howard, Process-Property Relationships of Ultra-Thin Boron Carbide Films, International Conference on Metallurgical Coatings and Thin Films, 2001.

M.-L. Wu, J. Kiely, Y.-T. Hsia, and K. Howard, Process-Property Relationships of Ultra-Thin Boron Carbide Films, Third International Conference on Tribology of Information Storage Devices, 2001.

M.-L. Wu, J. Kiely, Y.T. Hsia and K. Howard, Ultra-Thin Magnetic Media Overcoats Through ECR Deposition, AVS Annual Meeting, 2001.

M.-L. Wu, J. Kiely, Y.-T. Hsia, and K. Howard, Process-Property Relationships of Ultra-Thin Boron Carbide Films, MRS Fall Meeting 2001.

J.D. Kiely, P.M. Jones, L.B. Reitz, M.-L. Wu, J. Wen, N. Gitis, and M. Vinogradov, Wear Properties of Optical Slider Materials, STLE Annual Meeting, Nashville TN, 2001

P.M. Jones, J.D. Kiely and Y.-T. Hsia, Mechanical and Molecular Film Properties of Si₃N₄ and Y₂O₃-ZrO₂: A Comparative Study, MRS Fall Meeting 2000.

P.M. Jones, J.D. Kiely, and Y.-T. Hsia, Calculated Mechanical Properties of Cubic Materials, 12th Symposium on Information Storage and Processing Systems, 2000.

J.D. Kiely, Molecular Sources of Friction in Self-Assembled Monolayers, AVS NM Chapter.

J.D. Kiely and J.E. Houston, Adhesion, Deformation, and Friction of Self-Assembled Monolayers on Au and Si, ACS Annual Meeting.

J.D. Kiely and J.E. Houston, Friction and Wear of Self-Assembled Monolayer Films, MRS Spring Meeting.

K.F. Jarausch, J.D. Kiely, J.E. Houston and P.E. Russell, The Correlation of Stress State and Nanomechanical Properties in Au, MRS Spring Meeting.

J.D. Kiely and J.E. Houston, Deformation and Friction of Organic Monolayers, AVS Annual Meeting.

K.F. Jarausch, J.D. Kiely, J.E. Houston and P.E. Russell, Nanoindentation as a Probe of Stress State, AVS Annual Meeting.

J.D. Kiely and J.E. Houston, Deformation and Friction of Organic Monolayers, Am. Inst. Chem. Engineers Annual Meeting.

J.D. Kiely and J.E. Houston, Deformation and Friction of Organic Monolayers, Gordon Research Conference on Thin Film Mechanical Behavior (poster).

J.D. Kiely and J.E. Houston, Nanomechanical Properties of Au (100), (110), and (111), Soc. Experimental Mechanics Annual Meeting.

J.D. Kiely and J.E. Houston, Tribology and Wear of Alkanethiol Monolayers on Au, NM Chapter of the AVS.

R.Q. Hwang, J.D. Kiely and J.E. Houston, Influence Of Surface Morphology On Nanomechanical Properties, MRS Fall Meeting.

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"Recent Advances in Scanning Probe Microscopy", Materials Science and Engineering Dept. Seminar, University of Pennsylvania, Philadelphia, PA.